

Robert J. Hayes

PERSONAL INFORMATION

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EXHIBIT A

Work Address: Xencor
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British Citizen, Permanent Resident of the United States

PROFESSIONAL EXPERIENCE

2000-present Director of Molecular Biology, Xencor

- Responsible for overall research and development within the Department of Molecular Biology, including high-throughput gene construction, sequencing and protein expression. Responsible for staffing and equipment purchases, project management and departmental budget

1999-2000 Manager of Molecular Biology, Xencor

- Responsible for research and development within the Department of Molecular Biology
- Initiated and developed Xencor's PDA™ Screen technology
- Established Xencor's high-throughput gene construction and sequencing capabilities

1998-1999 Lead Scientist, Xencor

- Set up Xencor's Molecular Biology, Cell Biology and Protein Chemistry Departments. Responsible for staffing and equipment purchases
- Developed rapid gene construction techniques which allowed Xencor to test and improve its PDA™ technology
- Expressed and characterized PDA™-redesigned proteins using *E.coli*, *Pichia pastoris*, and mammalian cells

1996-1998 Independent Research Fellow, University of California at Berkeley

- Identified, cloned and characterized an RNA-binding protein which initiates mRNA degradation in prokaryotes

1994-1996 Postdoctoral Research Associate, The Waksman Institute at Rutgers University

- Identified, purified and characterized a protein complex required for mRNA processing

1990-1994 Postdoctoral Researcher, Imperial College, London University

- Developed the first purification strategy for a eukaryotic RNA virus replication complex

EDUCATION

1988 Ph.D. Biochemistry and Molecular Biology, Imperial College of Science, London University
1984 M.Sc. Biochemistry, University College, London University
1982 B.Sc. Biology, University College, Durham University

AWARDS AND HONORS

1984 Royal College of Science Scholar
1990-1994 AFRC University Fellow
1990 Awarded Royal Society University Fellowship
1994-1996 Bush Fellow
1996-1998 Recipient of competitive award from USDA Division of Molecular Biosciences
2000-2002 Recipient of NSF SBIR Phase 1 and 2 awards (with Dr. J. Bentzien)

Invited speaker at several international meetings, including International Congress of Virology (Berlin, 1990), Gordon Conference (1994, 1996, 1998), Keystone Symposium on Signal Transduction (1995), Cold Spring Harbor Meeting on Eukaryotic mRNA processing (1997), Cambridge Genomics Meeting (1999), Enzyme 2001, San Diego, Enzyme 2002, San Francisco.

LABORATORY SKILLS

Nucleic acid biochemistry:

- Lambda, phage display and yeast two-hybrid library construction.
- PCR, including 5' and 3' RACE, site-directed and random mutagenesis, RT-PCR and amplification from lambda libraries. cDNA library construction and screening.
- Identification of binding sites of RNA-binding proteins by SELEX.
- High-throughput gene construction, cloning and sequencing

Expression systems:

- Over-expression and purification of proteins in *E.coli*, *S.cerevisiae*, *P.pastoris* and Sf9 insect cells. *In vitro* expression of proteins in lysates.
- Denaturation and refolding of proteins.

Protein biochemistry:

- Analytical and preparative scale purification of peptides and proteins using HPLC and FPLC, including reverse phase, ion-exchange, affinity, immunoaffinity and size-exclusion chromatography.
- Analysis of proteins by Western blotting, isoelectric focusing, one and two-dimensional SDS-polyacrylamide gel electrophoresis, and peptide mapping.
- Development of enzymatic bioassays for purified proteins, and for proteins modified at the post-translational level. Development of high-throughput expression systems and solubility assays.
- Analysis of protein modification and protein-protein interactions by immunoprecipitation, the yeast two-hybrid system and Far-Western blotting.

ADDITIONAL SKILLS

- Near completion of database management (Oracle OCP) and Java programming course (Sun Certification) at UCLA

PUBLICATIONS

- (1) Hayes, R.J., Brough, C.L., Prince, V.E., Coutts, R.H.A., & Buck, K.W. (1988). *Journal of General Virology* 69, 209-218.
- (2) Brough, C.L., Hayes, R.J., Morgan, A.J., Coutts, R.H.A., & Buck, K.W. (1988). *Journal of General Virology* 69, 503-514.
- (3) Hayes, R.J., MacDonald, H., Coutts, R.H.A., & Buck, K.W. (1988). *Journal of General Virology* 69, 1345-1349.
- (4) Hayes, R.J., Coutts, R.H.A., & Buck, K.W. (1988). *Journal of General Virology* 69, 1487-1496.
- (5) Hayes, R.J., Petty, I.T.D., Coutts, R.H.A., & Buck, K.W. (1988). *Nature* 334, 179-182.
- (6) Hayes, R.J., Brunt, A.A., & Buck, K.W. (1988). *Journal of General Virology* 69, 3047-3055.
- (7) Hayes, R.J., Coutts, R.H.A., & Buck, K.W. (1989). *Nucleic Acids Research* 17, 2391-2403.
- (8) Hayes, R.J., & Buck, K.W. (1989). *Nucleic Acids Research* 17, 10213-10222.
- (9) Hayes, R.J., & Buck, K.W. (1990). *Journal of General Virology* 71, 2503-2508.
- (10) Hayes, R.J., & Buck, K.W. (1990). *Cell* 63, 363-368.
- (11) Osman, T.A.M., Hayes, R.J., & Buck, K.W. (1992). *Journal of General Virology* 73, 223-237.
- (12) Hayes, R.J., Tusch, D., Jacquemond, M., Buck, K.W., & Tepfer, M. (1992). *Journal of General Virology* 73, 1597-1600.
- (13) Hayes, R.J., & Buck, K.W. (1992). Analysis of virus replication complexes. In *Molecular Virology: A Practical Approach*. A. J. Davidson & R. M. Elliot (eds). Oxford University Press, Oxford, UK.
- (14) Thommas, P., Osman, T.A.M., Hayes, R.J., & Buck, K.W. (1993). *FEBS Letters* 319, 95-99.
- (15) Groning, B.R., Hayes, R.J., & Buck, K.W. (1994). *Journal of General Virology* 75, 721-726.
- (16) Hayes, R.J., Pereira, V.C.A. & Buck, K.W. (1994). *FEBS Letters* 352, 331-334.
- (17) Hayes, R.J., Pereira, V.C.A., McQuillin, A., & Buck, K.W. (1994). *Journal of General Virology* 75, 3177-3184.
- (18) Hayes, R.J., Kudla, J., Schuster, G., Maliga, P., & Grussem, W. (1996). *EMBO J.* 15, 1132-1141.
- (19) Kudla, J., Hayes, R.J. and Grussem, W. (1996). *EMBO J.* 15, 7137-7146.
- (20) Hayes, R.J., Kudla, J., & Grussem, W. (1998). *Trends in Biochemical Sciences*. 24, 199-202

REFERENCES

Available on request